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12 hours the majority of the *Sirian* stars are actually approaching the pole. Assuming the *Sirian* stars to be Galactic, this effect is exactly what would be produced by a revolution of the great Galactic ring, whose greatest northern and southern extensions are not far from 0^h and 12^h in Right Ascension.* The Galactic stars are thus moving to the N. in Aquila and to the S. in Taurus. The number of stars used (especially considering the manner in which the Catalogue has been compiled) is not sufficient to warrant a positive conclusion, but this seems to me to be the direction in which the evidence points. Of course, if such a revolution exists, the Galactic stars are not moving indifferently in all directions, and the motion of the Galaxy will have to be ascertained and allowed for in ascertaining the sun's goal with respect to it.

PHYSICAL OBSERVATIONS OF *JUPITER'S* SATELLITES IN TRANSIT.

BY JOHN TEBBUTT, F. R. A. S.

The following notes on the physical appearances of *Jupiter's* satellites during transit have been condensed from the records in my observatory journal, and may prove interesting in connection with the communications already appearing from me in Vol. III of the *Publications of the Astronomical Society of the Pacific*, No. 16, page 221, and No. 19, page 353. The times given are local sidereal:

Transit of Satellite II, September 12, 1891.—The internal contact at ingress occurred at $18^h 33^m 21^s$. The satellite continued visible as a bright spot till $18^h 46^m$. It had ceased to be visible at $18^h 48^m 45^s$. Although the planet's disc was at intervals carefully examined, no further trace of the satellite could be seen till near the time of egress, when it again became visible as a bright spot. The observations were made with powers of 120 and 180 on the $4\frac{1}{2}$ -inch equatorial.

Transit of Satellite III, October 2, 1891.—The early part of this transit occurred during sunlight. At $19^h 6^m 13^s$ the satellite

* Taking the poles of the Galaxy as $0^h 50^m$ and $12^h 50^m$, I find 22 *Sirian* stars between $12^h 50^m$ and $0^h 50^m$ with approaching motion against 16 receding. The sun's goal deduced from the motions of these 38 stars would probably have a Southern Declination.

was seen in strong twilight as a dark spot on the western limb, but it was not near so conspicuous as its shadow on the opposite limb. It was, however, darker than the contiguous belt. At $19^h 17^m 43^s$ it was seen with great difficulty, and only suspected at $19^h 19^m 13^s$. It was then quite invisible till $19^h 22^m 58^s$, when it was suspected as a bright spot. I was certain of this phase at $19^h 26^m 3^s$. The internal contact at egress took place at $19^h 27^m 13^s$, but the satellite was unusually faint, and also appeared oval with its major axis parallel to the limb of its primary. The 8-inch equatorial was employed with a power of 230.

Transit of Satellite I, October 19, 1891.—The internal contact at ingress was observed at $21^h 37^m 31^s$. The satellite was still visible as a bright spot, but much fainter, at $21^h 42^m 26^s$. The definition then became very bad for a short interval. At $21^h 46^m 56^s$ the definition had improved, but the satellite was invisible, and, although the definition continued good till the time of mid-transit, it was not afterward seen. The transit was watched with a power of 170 on the 8-inch telescope.

Transit of Satellite III, October 30, 1892.—The internal contact at ingress was observed at $1^h 2^m 14^s$. The satellite continued visible as a bright spot till $1^h 27^m 54^s$. It was afterward occasionally glimpsed as a faint but light spot till $1^h 33^m 54^s$, when it became quite invisible. Owing to clouds the transit could not be completely observed. At the time of mid-transit the satellite could not be seen either as a bright or a dark spot. The 8-inch telescope was employed with a power of 300.

Transit of Satellite III, December 12, 1892.—Owing to other avocations I could not attend completely to this transit. A few minutes after the time of mid-transit there was certainly no trace of the satellite on the disc, but the definition was bad. The telescope of $4\frac{1}{2}$ inches aperture was employed with a power of 120.

THE OBSERVATORY, WINDSOR, N. S. WALES,
1892, December 24.

NOTE FROM THE RETIRING PRESIDENT.

It has been the custom for the retiring President of the A. S. P. to give an address at the annual meeting. As I shall be more than 5000 miles away at the time, the omission of the customary address this year needs no further explanation.

MT. HAMILTON, January 14, 1893.

J. M. SCHAEBERLE.